

Learning Experiences Built Using the TLA Experience API

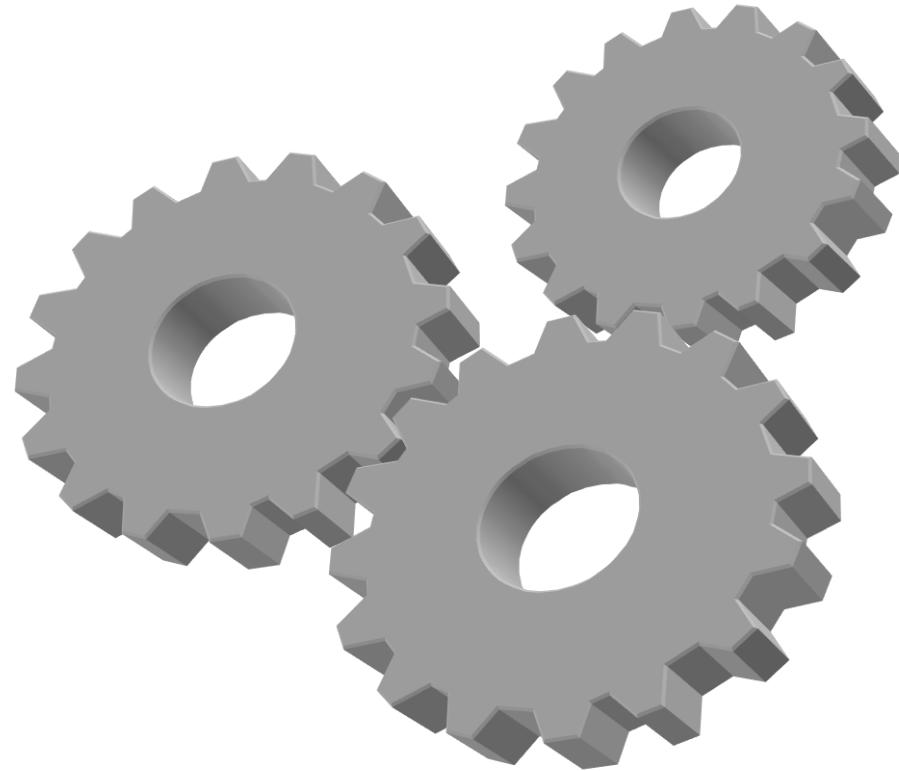
Nikolaus Hruska

ADL Technical Team

Contractor with Problem Solutions

Acronym Definitions

- *TLA* – Training and Learning Architecture (a.k.a. “Next Generation SCORM”)
- *(Experience) API* – Application Programming Interface
- (a.k.a. “Tin Can API”)



What is it?



Credit: Liz Burow ([@Burlix](#))

Why do we need a new API?

- Launch and track native mobile apps
- Allow me to get my data
- Manage group learning
- Launch and track full-scale simulators
- Track data beyond scores, completion, success...
- Assess after learning
- Manage learning not 'known' by the LMS
- Let me 'own' my data
- Etc.

Why Not Use SCORM?

- Mobile Learning happens outside of a desktop browser
- Launch via Frames, JavaScript API - worked for browsers and modalities *of the time* (PC, laptop)
- Sequencing – can be too difficult for easy cases or too constraining on ISDs for complex cases
- RESULT: vendors started creating proprietary solutions to deliver mobile devices and other rich media experiences (VW, Games, Sims, etc.)

Experience API Use Cases

- Gathered from “Project Tin Can”
 - Interviews with industry and academia
 - Input from Services via working groups
 - 100+ LETSI white papers
- Compiled and summarized on ADLnet.gov
- Results:
 - Make it simple...
 - Make it powerful...

How does it work?

How do we track 'Experiences'?

Activity Streams

- Collaboration between Google, Facebook, Microsoft and others
- <Actor> <Verb> <Object> (I did this)
- Allows reporting of experiences
 - Nikolaus posted a photo
 - Nikolaus liked a photo
 - Nikolaus commented on a photo

Learning Streams/Paths

- $\approx 10\%$ of learning is formal ([@judyb](#))
- How do we capture the informal learning and tie to performance?
- What is an expert?
- The best performing learners dictate what works best
- Streams of experts can guide the path of new learners

Example Stream

- Nikolaus completed HTML5 training
- Nikolaus watched Khan Academy CSS 3 Intro
- Nikolaus authored Activity Streams blog
- Nikolaus attended iFest 2012
- Nikolaus spoke at iFest 2012
- Nikolaus read the Steve Jobs Book
- Nikolaus rated the Steve Jobs Book 5 stars

How do we track it?

Experience API

- Simple lightweight web service API
- **No restrictions on content**, just on how to report to tracking system
- Supports mobile out of the box, as well as any platform (out of browser!)
- Quick win to use the API to do SCORM-type tracking on any platform
- Tracks experiences, not just completions

Where do we store it?

Learning Record Store (LRS)

- LRS \neq LMSs of today
- No content management
- No sequencing
- No navigation
- ONLY learning record storage
- CAN be an API to existing LMSs
- KEY: Removes innovation ceiling on content and servers

What types of new applications can be built using the Experience API?

Early Adopters

articulate®

[SaLTBOX]
SALES and LEARNING TOOLBOX

OpenSesame

edCetra

ROLEPLAY™
Learning Interaction

serco

Tappestry

dominKnow
connect the thoughts

Litmos
LOVE YOUR LMS

e
ellogic
LEARNING

EX
AM
BUILDER

RISC

float
mobile learning

MAP
DECK

hand
YOUR BLUEPRINT FOR SUCCESS

ONPOINT
DIGITAL
LMS/LCMS and Mobile Learning Solutions

Questionmark®

Problem
Solutions

Rapid Intake® Work as One®
Cloud-based Collaborative Course Authoring

RUSTICI
SOFTWARE

MediaTechnics
Innovative technology for publishing and education

- “So some things get invented because it is suddenly possible to invent them.”

-Vint Cerf

http://www.wired.com/epicenter/2012/04/ff_spotfuture_gas/all/1

Innovative Apps at mLearnCon 2012

- Tappestry
- Mapdeck
- Storyline
- Gold Star

Which other technologies can help
us track experiences in the TLA?

Hint: Web standards

Self-Describing Content

- The Semantic Web
- Schema.org, RDF(a), Open Graph, HTML meta tags, Microformats
- Allows systems to understand content
- Can dictate the contextually corresponding verb
 - Nikolaus Read <Article>
 - Nikolaus Watched <Video>
 - Nikolaus Baked <Recipe>

Open Graph Protocol



Nikolaus Hruska shared a link.

December 16, 2011

Android users apparently safe from mugging



Mugger Rejects Victims' Non-iPhones

gizmodo.com

If you're worried about getting your phone snatched on a dark sidewalk, here's a top security tip: don't own an iPhone. A spat of attempted phone-jackings at Columbia University have one thing in common:

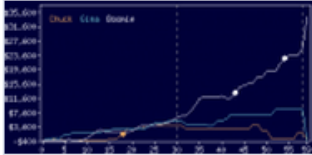
Like · Comment · Share



Nikolaus Hruska shared a link.

December 14, 2011

Practicing for my Jeopardy! appearance...



Jeopardy! Question Archive

www.j-archive.com

An archive of clues and players for Jeopardy! show #6267.

Like · Comment · Share

2

Ex. Facebook Open Graph Applications

- Allows custom applications to be built on top of the Facebook Platform
- Developers define
 - Objects
 - Verbs
 - Display rules

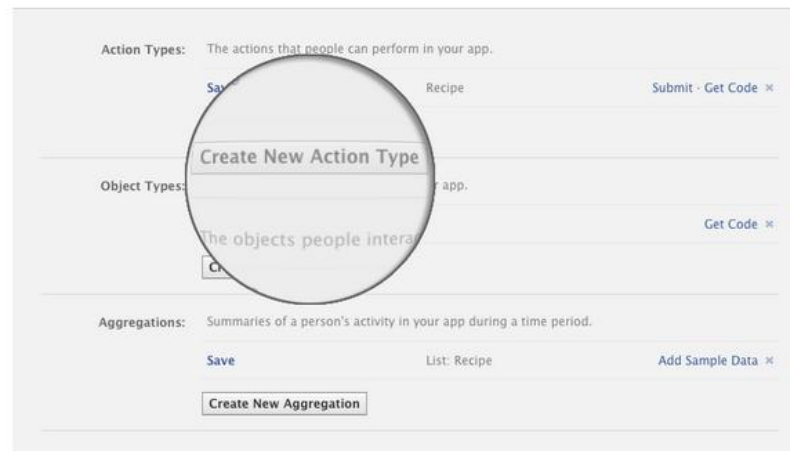


Define New <Verb>

Define Action Types

To define an Action Type, click on the "Create New Action Type" button in the Dashboard view and enter an action which describes a high-level social action users can do in your app.

Apps > Recipe Box > Open Graph



The screenshot shows a web interface for defining action types. It has three main sections: 'Action Types', 'Object Types', and 'Aggregations'. Each section has a description, a list of existing items, and a 'Create New' button. A circular callout highlights the 'Create New Action Type' button in the 'Action Types' section.

Action Types: The actions that people can perform in your app.

Save Recipe Submit · Get Code ✕

Create New Action Type

Object Types: The objects people interact with in your app.

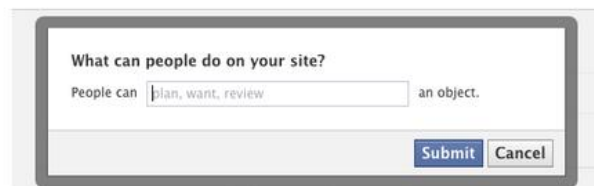
Create Get Code ✕

Aggregations: Summaries of a person's activity in your app during a time period.

Save List: Recipe Add Sample Data ✕

Create New Aggregation

Start typing the action into the action dialog to get started:



The dialog box is titled 'What can people do on your site?'. It contains a text input field with the placeholder text 'plan, want, review'. Below the input field are 'Submit' and 'Cancel' buttons.

What can people do on your site?

People can an object.

Submit Cancel

Define Verb Tenses

Configure Story Text

Configure Story Text

Tenses Supported: [?] Stories for this action should be shown in: **both past and present tenses.** ▼

Past Tense: [?] Christine **on Recipe Box** ▼

Plural Past Tense: [?] Christine and two other friends

Present Tense: [?] Christine

Plural Present Tense: [?] Christine and two other friends

Imperative Tense: [?] Hey Christine, this.

Sentence Previews: **Singular Present** Plural Present Singular Past Plural Past Imperative

Nothing to show in this category.

Define new <Object>

Configure Custom Object Types

Once you have defined the name of a custom object type, you are ready to configure its properties.

Settings

Open Graph >

- Getting Started
- Dashboard
- Debug
- App Tab

Roles

Insights

Related links

- Translate your App
- View App Profile Page
- Graph API Explorer
- Submit to Search

Apps > Recipe Box > Open Graph > Object Type: recipe


1 Name: [?] Examples: book, movie, tv_show

2 Object Properties: [?]


Title	String	<input type="text" value="Pumpkin Pie"/>
Description	String	<input type="text" value="Best Pie Ever"/>
Image	Image []	<input type="text" value="http://www.meals.com/imagesrecipes/18"/>
URL	URL	<input type="text" value="http://samples.ogp.me/286098081407126"/>
Created By	<input type="text" value="Profile"/> <input type="text" value="212969"/>	<input type="text" value="212969"/>

Add Another Property Examples: Author, Distance, Director, Length

In News Feed: [?]



Christine Abernathy liked Story in Feed about (verb)ing an Open Graph object. Pumpkin Pie on Recipe Box.



Pumpkin Pie
Best Pie Ever
Created By: 212969

about a minute ago

3 Singular Noun: [?] Christine liked

Plural Noun: [?] Christine liked three

4 Advanced +

Save Changes Cancel

Timeline Display



Piyush Mangalick cooked a recipe on NYCCookbook.
Check out this video of what I cooked tonight!




Cookie!

C is for cookie, that's good enough for me



Like · Comment · Unfollow Post · a few seconds ago via NYCCookbook

Semantic Web Example



Search

About 35,400,000 results (0.44 seconds)

Web

Images

Maps

Videos

News

Shopping

Recipes

More

Four Corners, FL

Change location

Ingredients

chocolate chips

baking soda

walnuts

vanilla extract

shortening

pecans

vanilla

Yes No

☐ ☐

☐ ☐

☐ ☐

☐ ☐

☐ ☐


☐ ☐

☐ ☐

Any cook time

Less than 15 min


Original NESTLÉ® TOLL HOUSE® Chocolate Chip Cookies

www.verybestbaking.com/...Chocolate-Chip-Cookie...
This famous classic American **cookie** is a treat no matter what the age or occasion. Enjoy it with a glass of cold milk.
[Semi-Sweet Morsels](#) - [Print Full with Photo](#) - [Share on Twitter](#) [Twitter](#)





Best Chocolate Chip Cookies Recipe - Allrecipes.com

allrecipes.com/recipe/best-chocolate-chip-cookies/
★★★★★ 4171 reviews - 1 hr - 298 cal
Best **Chocolate Chip Cookies**. By: Dora. "Crisp edges, chewy middles." This Kitchen Approved Recipe has an average star rating of 4.6 Rate/Review | [Read ...](#)
[Absolutely the Best Chocolate ...](#) - [Best Ever Chocolate Chip ...](#) - [Recipes Like](#)

Chocolate Chip Cookies Recipe & Video - Joyofbaking.com *Tested ...

www.joyofbaking.com/ChocolateChipCookies.html
14 mins
Chocolate Chip Cookies are made with butter and a combination of white and brown sugars which produces a rich and chewy cookie. With Demo Video.
 by Stephanie Jaworski - [More by Stephanie Jaworski](#)

Images for chocolate chip cookies - [Report images](#)



Ultimate Chocolate Chip Cookies Recipe from Betty Crocker

Search “filters”

Ingredients

chocolate chips

Yes No

☐ ☐

baking soda

☐ ☐

walnuts

☐ ☐

vanilla extract

☐ ☐

shortening

☐ ☐

pecans

☐ ☐

vanilla

☐ ☐

Any cook time

Less than 15 min

Less than 30 min

Less than 60 min

Any calories

Less than 100 cal

Less than 300 cal

Less than 500 cal

Google's Rich Snippets Testing Tool

Extracted rich snippet data from the page

recipe
Review Review-aggregate
rating Rating
photo =
value = Chocolate-Dipped Chocolate Chip Cookies recipe
href = http://www.kraftrecipes.com/assets/recipe_images/Chocolate-Covered_Cookie_Smores.jpg
ingredient ingredient
amount = 4
name = BAKER'S Semi-Sweet Chocolate
ingredient ingredient
amount = 18
name = CHIPS AHOY! Cookies
ingredient ingredient
amount = 1/2
name = PLANTERS Nuts
ingredient ingredient
amount = 1/2
name = BAKER'S ANGEL FLAKE Coconut
instructions Instructions
instruction = MICROWAVE chocolate in small microwavable bowl on HIGH 2 min. or until chocolate is almost melted, stirring after 1 min. Stir until chocolate is completely melted.
instruction = DIP half of each cookie into chocolate, then roll in nuts or coconut. Place on wax paper-covered tray.
instruction = LET stand at least 1 hour or until chocolate is firm.
nutrition Nutrition
calories = 130
nutrition Nutrition
fat = 8 g
nutrition Nutrition
saturatedFat = 3 g
nutrition Nutrition
cholesterol = 0 mg
nutrition Nutrition
carbohydrates = 14 g
nutrition Nutrition
fiber = 1 g
nutrition Nutrition
sugar = 8 g
nutrition Nutrition
protein = 2 g
recipeType = Desserts
name = Chocolate-Dipped Chocolate Chip Cookies
prepTime = PT10M
totalTime = PT10M
yield = 18 servings, 1 cookie each.

Applied to Learning

- Could filter learning content by: Grade, Level of Difficulty, Prerequisites, Subject, and whether the content was authored for use by teachers or students
- Learning Resource Metadata Initiative (LRMI)
 - creating a common eLearning vocabulary for schema.org
 - Allows embedding rich semantic data into our learning resources

What Does it Mean to You?

- New markets created - we're enabling programmers in basements to start hacking node.js, PHP, Objective C, Java, C#, Python...
- New experiences enabled - can track real-time progress throughout lifecycle of learning activities
- Track both formal and informal learning
- Can track "lifelong learning"

ADL Tech Team Demos

QR Code Scanning Game

- Mobile learning allows location-based learning in context
- It is expected that the questions would correspond with the destination
- Works great at conferences - allows asynchronous exploration of the floor
- Many different real-world scenarios are possible
- Open Source – <http://github.com/adlnet>
- HTML5, jQuery based

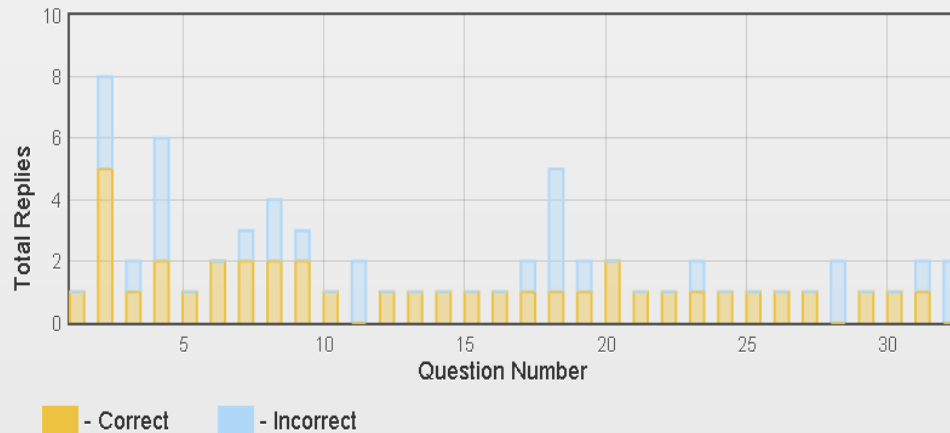
ADL 'Tin Can Rally' Dashboard

start playing now at: <http://mlc.adlnet.gov>

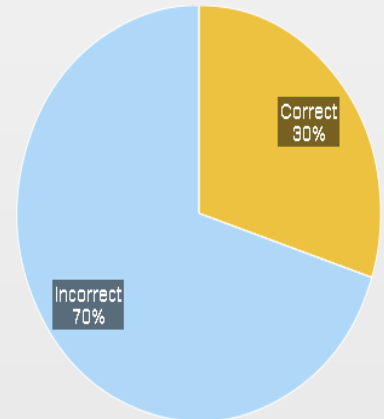
25 Players

aaa is now playing!
Alex Turkov... is now playing!
Alex Turkov... is now playing!
ryngme is now playing!
David Mende... is now playing!
kbporter is now playing!
Clairesch is now playing!
Clairesch is now playing!
EricJohnson is now playing!

65 QR Codes Scanned



10 Solve Attempts



39 Tiles Uncovered

Sue got a letter!
Sue got a letter!
ryngme got a letter!
Rick Raymer got a letter!
Rick Raymer got a letter!
Rick Raymer got a letter!
Rick Raymer got a letter!
Sue got a letter!
Sue got a letter!
Sue got a letter!

Top Scanners

Sue	12
Rick Raymer	11
Ccolton	10
nhruska	8
Jimpfarrell	5
Mark dewey	5
andyj	4
Jono MLearncon	4
clembotic	4
EricJohnson	3

3 Puzzle Solvers

Sue solved the puzzle!
Rick Raymer solved the puzzle!
Ccolton solved the puzzle!

Informal Learning Bookmarklet

- How do I capture the fact that I saw value in a web page or document?
- Similar to “Read it Later”, “Save on delicious”
- TODO: start looking at semantics of pages, trends over large datasets, linking external resources (or finding new ones) from learners, crowd sourcing content
- Tracks informal path of best learners as a model for new learners

Virtual World Framework Sample

- Advanced example integrating several technologies
- VWF, Web sockets, WebGL, jQuery, Tin Can API
- Purely browser based, without plug-ins

The Big Picture

- How does this fit into the larger picture of what we're doing at ADL with Next Generation SCORM?
- This is the runtime API
- This first round of products will report learning progress
- Looking ahead - report DURING the activities to make formative assessments
- We're looking at the semantic web, machine learning, intelligent tutors, etc.

How to get involved...

- <http://tincan.adlnet.gov>
 - Wiki <http://tincanapi.wikispaces.com>
 - Google Groups
 - Stakeholders, Adopters, Spec Contributors
 - Developers – <http://github.com/adlnet>
 - Open Source LRS
 - “Content” Examples

Questions?

- Nikolaus Hruska
- Email: nikolaus.hruska.ctr@adlnet.gov
- Twitter: [@nikolaushruska](https://twitter.com/nikolaushruska)

<http://www.adlnet.gov>